4 steps to solving a linear system using SUBSTITUTION:

STEP 1: Solve one of the <u>equations</u> for one of its <u>variables</u>.

STEP 2: Substitute the <u>expression</u> from Step 1 into the other <u>equation</u> and solve for the other <u>variable.</u>

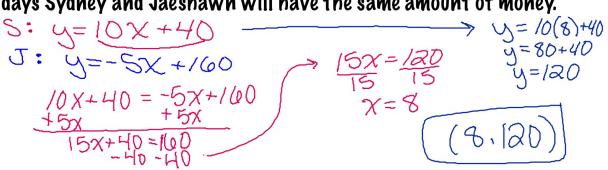
STEP 3: Substitute the value from Step 2 into one of the original equations and solve for the remaining variable.

STEP 4: Check your solutions in each of the original equations.

1. Sydney has \$40 and is saving \$10 per day. Jaeshawn has \$160 and is spending \$5 per day.

Let x represent the # of days and y represent the amount of money.

a. WRITE and SOLVE a linear system to determine after how many days Sydney and Jaeshawn will have the same amount of money.



b. Using words, explain your solution in the context of the situation.

In 8 days, they both have \$ 120.

2)
$$x = (y + 6)$$
 $\Rightarrow x = 4 + 60$
 $2y + 2x = 28$
 $2y + 2(y + 6) = 28$
 $2y + 2y + 12 = 28$
 $4y + 12 = 16$
 $4y = 16$
 $4y = 4$

3)
$$9x + 9y = -9$$

 $x = -5y - 13$

4)
$$y = 2x + 4$$

 $y = 4x - 10$

$$= 14 + 4$$

$$= 18$$

$$= 2x + 4 = 4x - 10$$

$$= 18$$

$$= 18$$

$$= 18$$

$$= 18$$

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5)
$$y = 6x - 11$$

$$-2x - 3y = -7$$

$$-2x + 3(6x + 11) = -7$$

$$-2x + 18x + 35 = -7$$

$$-20x + 35 = -7$$

$$-20x = -40$$

$$-20x = -40$$

6)
$$y = 4x + 10$$
 $-8x + 2y = 20$
 $-8x + 2(4x + 10) = 20$
 $-8x + 8x + 20 = 20$
 $20 = 20$

Infinitely
Many
Solutions

7)
$$2x - y = 10$$

 $y = -6x + 6$